



Michael F. Easley, Governor

William G. Ross Jr., Secretary  
North Carolina Department of Environment and Natural Resources

Coleen S. Sullins, Director  
Division of Water Quality

May 26, 2008

Ms. Jane D. Wastewater, PE  
Director of Public Utilities  
Town of Typicalville  
PO Box 1234  
Typicalville, NC 21234

Subject: Pretreatment Review of Headworks Analysis (HWA)  
Program: Town of Typicalville  
WWTP: Typicalville WWTP - NC0012345  
Carolina County

Dear Ms. Wastewater:

The Pretreatment, Emergency Response, and Collection Systems Unit (PERCS) of the Division of Water Quality has reviewed the Headworks Analysis (HWA) for the Town of Typicalville WWTP - NC0012345. This HWA was received by the Division on March 31, 2008, with additional information received since then.

The Division **concurs** with the HWA calculations for all pollutants of concern, **with the observations** discussed below. These approved Maximum Allowable Headworks Loadings (MAHL), Maximum Allowable Industrial Loadings (MAIL), and the basis for these values are found on the last page of the enclosed HWA spreadsheet. The results of the HWA are also listed in the bottom section of the enclosed Allocation Table.

Next HWA Due Date: The HWA was based primarily on 2004-2007 data. Unless conditions at the POTW change significantly and thus warrant an earlier submittal (see *Comprehensive Guide, Section B*), the POTW must submit an updated HWA on or before **April 1, 2012**.

Thank you for your continued cooperation with the Pretreatment Program. If you have any questions or comments, please contact Dana Folley at (919) 733-5083, ext. 523 ([dana.folley@ncmail.net](mailto:dana.folley@ncmail.net)) or Jeff Poupart, PERCS Unit Supervisor, at ext. 333.

Sincerely,

*Dana Rees Folley*

for Coleen H. Sullins

DRF/typicalville\_hwa\_010

Enclosures: HWA and AT spreadsheets

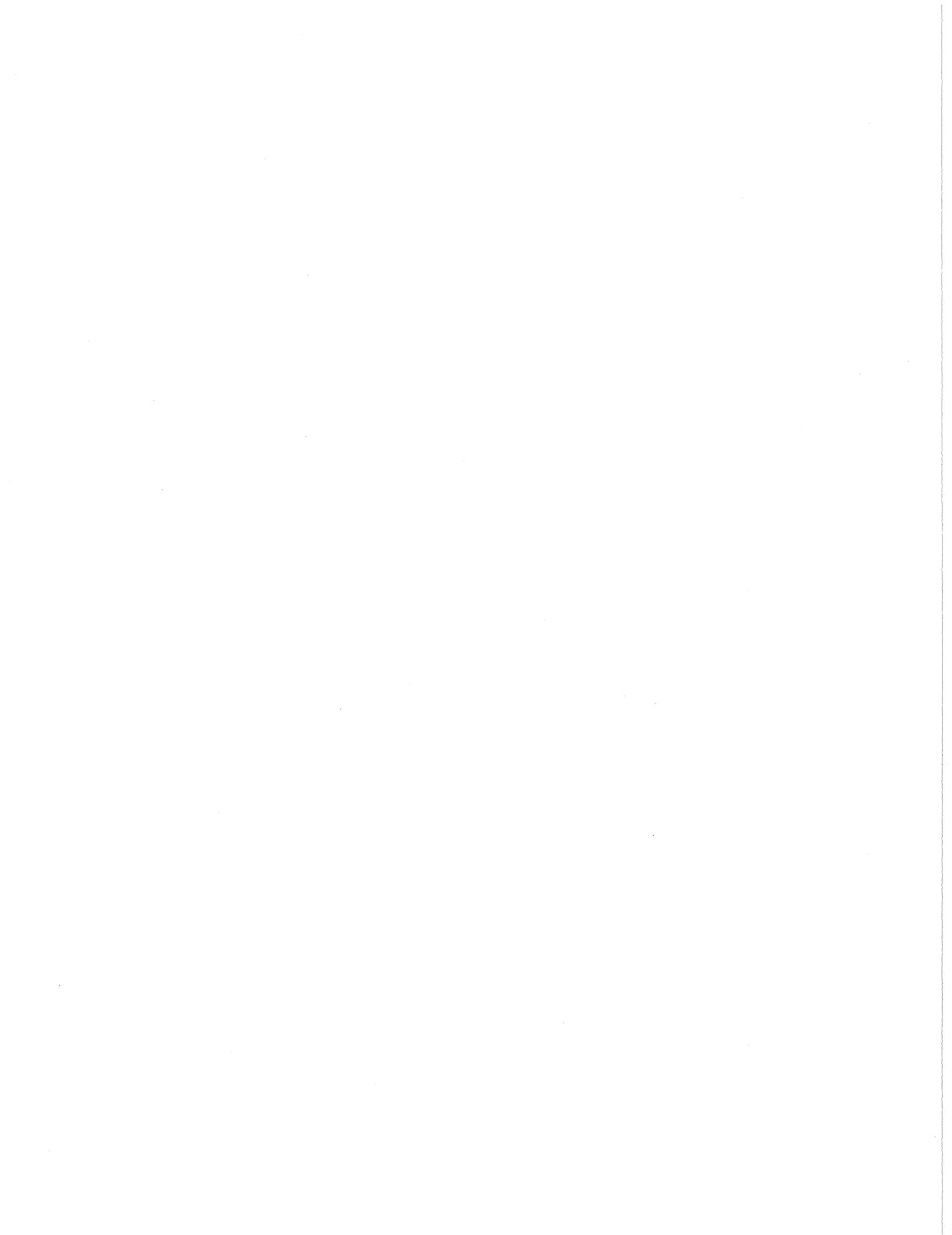
Cc with enclosures:

Dana Folley, PERCS Unit

Cc without enclosures:

George Smith, Winston-Salem Regional Office  
Central Files

1A



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TOWN OF TYPICALVILLE, NC  
"WE'RE ANYTHING BUT TYPICAL"

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March 25, 2008

SEND CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Deborah Gore, Acting Supervisor  
NC DWQ – PERCS – Pretreatment  
1617 Mail Service Center  
Raleigh, NC 27699-1617

Subject: Town of Typicalville NC 0012345 Headworks Analysis

Dear Ms. Gore:

As required by the above NPDES permit, enclosed is the Town of Typicalville's Wastewater Treatment Plant Headworks Analysis.

Please be advised that two of our SIU permits are schedule to expire on September 30, 2008. We would like to be able to use the new headworks for the development of these new permits.

If you have any questions regarding this information, please contact me at 555-123-4567 or [jane.wastewater@typicalville.com](mailto:jane.wastewater@typicalville.com). Or you may contact John Basin, Pretreatment Coordinator at 123-4576.

Sincerely,

*Jane D. Wastewater, PE*

Director of Public Utilities

Cc: Mayor  
ORC

Enclosure: HWA Narrative, spreadsheets and other supporting information

1B

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Town of Typicalville  
PO Box 1234  
Typicalville, NC 21234  
555-123-4567

Typicalville WWTP  
1234 Carolina Road (NCSR1000)  
Typicalville, NC 21234  
555-123-4576

## **2008 HWA Narrative:**

### **HWA Data Time Period:**

Our least frequent sampling frequency for our influent and effluent is quarterly for all LTMP only POCs. So we used 2004-2007 to get 12 sets of data. Note Metals Extraordinaire did not start operation until Jan 2006, so that's all the data we have for them. Review shows this may have affected our mass balance, but not much. Also note we used data from Big Time Textiles as they were at full production through the end of 2007. Of course they are not on the Allocation Table as they shut down in 2008.

### **WWTP Design Criteria:**

Our WWTP Design Criteria are below typical domestic levels. We have elected to use Option 2 of PERCS February 2007 letter, the 1.5 multiplier. Our WWTP meets all the conditions specified in PERCS December 2007, letter. We did have NPDES violations in January 2007 – a monthly and a weekly TSS. These violations were caused by excessive flow due to a 5 inch rain event in a 24 hour period. We continue to work on our collection system and remove I&I as required by our collection system permit, however a 5 inch rain is very unusual.

### **Removal Rate Calculations:**

All available DMR & LTMP data was used. Generally, we recalculated any DMR monthly averages using ½ DL for all BDLs. However, in some cases we used the monthly average value for BOD and NH<sub>3</sub> straight from the DMR as it was calculated ignoring the BDLs. We checked the math for several values and determined that ignoring the BDLs actually results in a higher effluent that either using ½ DL for the BDLs or zero for the BDLs. A higher effluent value results in a smaller removal rate, which is always more conservative for conventional pollutants.

Generally, the resultant site-specific removal rates were used in the HWA except for several of the metals where the data was greater than 50 % below detection in which case we used the EPA literature.

### **Water Quality Standards:**

Carolina River is classified as Water Supply-IV, so we used the lower WS WQS for nickel. We have not failed Whole Effluent Toxicity since 1999, so we did not use the NC WQ Action Levels for copper, silver, and zinc.

### **Inhibition Calculations:**

We do have an NH<sub>3</sub> limit but its 14.8 mg/l and only in the summer. Strictly speaking, we do not need to nitrify to meet this limit. Indeed, our average influent is only 8.2 mg/l. However, we do nitrify and want to keep doing so. So we compared the literature criteria for both activated sludge and nitrification, and used the most stringent.

Our LTMP aeration basin data did show values greater than literature for copper, cyanide, and zinc. Review of our DMRs for all basin sampling time periods show these concentrations did not inhibit our activated sludge or our nitrifiers. We decided to use the average of all the aeration basin data at both basins for copper and zinc to be a little conservative. For cyanide, we used the average of the highest values at each basin. These values are representative of both basins.

### **Sludge Calculations:**

We were over allocated for arsenic based on Sludge ceiling. We reviewed our sludge data back three years to confirm there have been no sludge violations for arsenic or any other parameter. So we used the HASL for arsenic.

### **Uncontrollable Mass Balance:**

This was negative for cyanide and molybdenum. We used our average influent value as our uncontrollable.

	A	B	C	D	E	F	G	H	I	J	K	
1	Headworks Analysis Spreadsheet											
2	POTW Name:	Typicalville										
3	Date:	1/7/2009										
4	POTW NPDES # =>	NC0012345										
5	POTW Sludge Permit # =>	WQ0001234										
7	POTW NPDES Permitted Flow(MGD)=	13.5										
8	POTW Average Flow(MGD)=	7.168										
9	Uncontrollable Flow(MGD)=	3.594										
10	7Q10 Stream Flow(MGD)=	239.02										
11	Stream Classification =	WS-IV										
13	Class of Sludge generated (A, or B)	B										
14	Sludge to Digester Flow(MGD)=											
15	Sludge to Disposal Flow(MGD)=	0.0267										
16	%Solids to Disposal=	4.4										
17	Sludge Site Area(acres)=	1164.9										
18	Sludge Site Life(Yrs)=	75										
19	Age of Sludge Site(yrs)=	5										
21	<b>Pass-Through Loading Calculations</b>											
23	Pollutant	NPDES LIMIT (mg/l)	Plant Removal Rate (%)	Removal rate Source	NPDES Loading (lbs/day)	Stream Standard (mg/l)	Stream Standard Source	Stream Loading (lbs/day)	Design Criteria Loading (lbs/day)	Minimum Pass-Thru Basis		
24	BOD	30	97	Site Specific	59,781				29,555	Design		
25	TSS	30	89	Site Specific	16,304				25,333	Design		
26	Ammonia	14.8	98	Site Specific	44,238				44,238	NPDES		
27	Arsenic		45	Default Literature		0.01	NC WQS-WS	37,3311		Stream Std		
28	Cadmium		67	Default Literature		0.002	NC WQS-C	12,4437		Stream Std		
29	Chromium		82	Default Literature		0.05	NC WQS-C	570.3355		Stream Std		
30	Copper		70	Site Specific			Action Level					
31	Cyanide		69	Default Literature		0.005	NC WQS-C	33.1163		Stream Std		
32	Lead		61	Default Literature		0.025	NC WQS-C	131.6159		Stream Std		
33	Mercury	0.000224	60	Default Literature	0.03348					NPDES		
34	Molybdenum		22	Site Specific								
35	Nickel		42	Default Literature		0.025	NC WQS-WS	88.5003		Stream Std		
36	Selenium		50	Default Literature		0.005	NC WQS-C	20.5321		Stream Std		
37	Silver		75	Default Literature			Action Level					
38	Zinc		72	Site Specific			Action Level					
39	Total Nitrogen											
40	Total Phos.											
41	c											
42	d											
43	e											
44	f											
45	g											
46	h											
47	i									2		

Spreadsheet Instructions:  
 1) Applicable Values should be entered in the Heavy Bordered Blue cells. The rest of worksheet is protected, password is "2".  
 2) Additional pollutants can be added in cells A41 to A47. Note all Pollutant names are linked from here to other pages in HWA worksheet and also to AT worksheet (i.e., automatically entered into other pages in HWA worksheet and also AT worksheet from HWA worksheet).  
 3) Formulas are discussed in the Comprehensive Guidance HWA Chapter.  
 4) HWA, AT and HASL worksheets are linked. MAHLs, Basis, and Uncontrollable load are automatically entered into AT from this worksheet.  
 5) If red tab notes are not visible, they can be turned on in the "Tools" menu under "options", in the "view" tab click the "comment indicator only" button.

1.5 times Design Values	Average Flow	Permitted Flow	Design Criteria Loading
262.5	1000.0	531.0	X
225	272.7	144.8	X
	740.0	392.9	

	Through calc. for different flows	Permitted Flow	Design Criteria Loading
WWTF Influent BOD (mg/l)		531.0	X
WWTF Influent TSS (mg/l)		144.8	X
WWTF Influent NH <sub>3</sub> (mg/l)		392.9	
WWTF Influent Total N(mg/l)			
WWTF Influent Total P (mg/l)			

A	B	C	D	E	F	G	H	I	J	K	
49											
50											
51	Inhibition Loading Calculations Average Influent NH <sub>3</sub> (mg/l) <input type="text"/> <input type="text"/> Average Influent to Anaerobic Digester NH <sub>3</sub> (mg/l) <input type="text"/> <input type="text"/> only enter when have ANAEROBIC digester										
	Pollutant	Primary Removal Rate (%)	Primary Removal Rate Source	A.S./Nit./T.F. Inhibition Concentration (mg/l)	A.S./Nit./T.F. Inhibition Concentration Source	A.S./Nit./T.F. Inhibition Loading (lbs/day)	Digester Inhibition Concentration (mg/l)	Digester Inhibition Conc. Source	Digester Inhibition Loading (lbs/day)	Minimum Inhibition Loading (lbs/day)	Minimum Inhibition Loading Source
52	BOD										
53	TSS										
54	Ammonia			480	EPA Lit-AS	28694.9376				28694.94	AS/Nit/TF ir
55	Arsenic			0.1	EPA Lit-AS	5.9781				5.9781	AS/Nit/TF ir
56	Cadmium			1	EPA Lit-AS	59.7811				59.7811	AS/Nit/TF ir
57	Chromium			0.394	NC Lit-Nit-2006	23.5538				23.5538	AS/Nit/TF ir
58	Copper			7.0	Site Specific-BPJ	416.8986				416.8986	AS/Nit/TF ir
59	Cyanide			0.12	Site Specific-BPJ	7.1737				7.1737	AS/Nit/TF ir
60	Lead			0.5	EPA Lit-Nit	29.8906				29.8906	AS/Nit/TF ir
61	Mercury			0.1	EPA Lit-AS	5.9781				5.9781	AS/Nit/TF ir
62	Molybdenum										
63	Nickel			0.25	EPA Lit-Nit	14.9453				14.9453	AS/Nit/TF ir
64	Selenium										
65	Silver			0.25	EPA Lit-AS	14.9453				14.9453	AS/Nit/TF ir
66	Zinc			2.3	Site Specific-BPJ	139.7384				139.7384	AS/Nit/TF ir
67	Total Nitrogen										
68	Total Phos.										
69	c										
70	d										
71	e										
72	f										
73	g										
74	h										
75	i										
76											

3

	A	B	C	D	E	F	G	H	I	J	K
77											
78	Sludge Loading Calculations										
		Sludge Ceiling Concentration Limit (mg/kg)	Sludge Ceiling Load (lbs/day)	Sludge Ceiling Load - HASL Calc. - (lbs/day)	Cumulative Sludge Rate Limit (lbs/(acre*life))	Cumulative Sludge Loading (lbs/day)	Class A Limits Monthly Average Rate Limit (mg/kg)	Class A Limits Monthly Avg. Loading (lbs/day)	Class A Limits Mon. Avg. Load. - HASL Calc. - (lbs/day)	Minimum Sludge Loading (lbs/day)	Minimum Sludge Loading Sorce
79	Pollutant										
80	BOD										
81	TSS										
82	Ammonia										
83	Arsenic	75	1.6330	2.9481	36	3.4021	41			2.9481	Sludge Ceiling
84	Cadmium	85	1.2430		34	2.1581	39			1.2430	Sludge Ceiling
85	Chromium										
86	Copper	4300	60.1867		1338	81.2866	1500			60.1867	Sludge Ceiling
87	Cyanide										
88	Lead	840	13.4921		267	18.6141	300			13.4921	Sludge Ceiling
89	Mercury	57	0.9308		15	1.0632	17			0.9308	Sludge Ceiling
90	Molybdenum	75	3.3402		374	37.8689	420			3.3402	Sludge Ceiling
91	Nickel	420	9.7978		89	7.5697	100			9.7978	Sludge Ceiling
92	Selenium	100	1.9596							1.9596	Sludge Ceiling
93	Silver										
94	Zinc	7500	102.0608		2498	147.5437	2800			102.0608	Sludge Ceiling
95	Total Nitrogen										
96	Total Phos.										
97	c										
98	d										
99	e										
100	f										
101	g										
102	h										
103	i										
104											

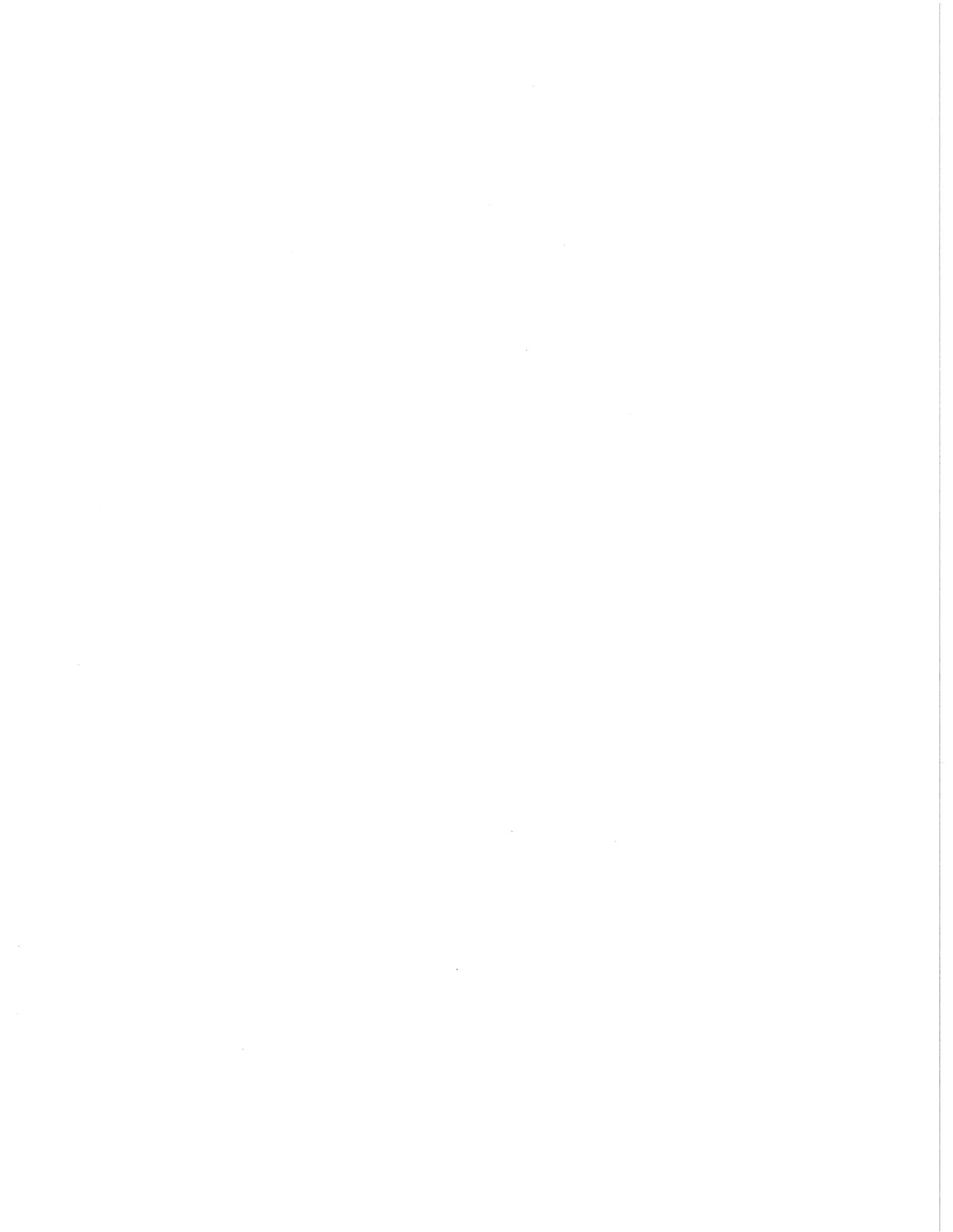
4

A	B	C	D	E	F	G	H	I	J	K
105	Maximum Allowable Headworks Loading Calculations									
	Minimum Pass Through Loading (lbs/day)	Pass Through Source	Minimum Inhibition Loading (lbs/day)	Minimum Inhibition Loading Source	Minimum Sludge Loading (lbs/day)	Minimum Sludge Loading Source		Maximum Allowable Headworks Loading (lbs/day)	Maximum Allowable Headworks Loading Source	
106	29554.9	Design						29554.9	Design	
107	25332.8	Design						25332.8	Design	
109	44238.0	NPDES	28694.9376	AS/Nit/TF inhibition				28694.9	AS/Nit/TF inhibition	
110	37.3311	Stream Std	5.9781	AS/Nit/TF inhibition	2.9481	Sludge Ceiling HASL		2.9481	Sludge Ceiling HASL	
111	12.4437	Stream Std	59.7811	AS/Nit/TF inhibition	1.2430	Sludge Ceiling		1.2430	Sludge Ceiling	
112	570.3355	Stream Std	23.5538	AS/Nit/TF inhibition				23.5538	AS/Nit/TF inhibition	
113			416.8986	AS/Nit/TF inhibition	60.1867	Sludge Ceiling		60.1867	Sludge Ceiling	
114	33.1163	Stream Std	7.1737	AS/Nit/TF inhibition				7.1737	AS/Nit/TF inhibition	
115	131.6159	Stream Std	29.8906	AS/Nit/TF inhibition	13.4921	Sludge Ceiling		13.4921	Sludge Ceiling	
116	0.03348	NPDES	5.9781	AS/Nit/TF inhibition	0.9308	Sludge Ceiling		0.03348	NPDES	
117					3.3402	Sludge Ceiling		3.3402	Sludge Ceiling	
118	88.5003	Stream Std	14.9453	AS/Nit/TF inhibition	9.7978	Sludge Ceiling		9.7978	Sludge Ceiling	
119	20.5321	Stream Std			1.9596	Sludge Ceiling		1.9596	Sludge Ceiling	
120			14.9453	AS/Nit/TF inhibition				14.9453	AS/Nit/TF inhibition	
121			139.7384	AS/Nit/TF inhibition	102.0608	Sludge Ceiling		102.0608	Sludge Ceiling	
122	Total Nitrogen									
123	Total Phos.									
124	c									
125	d									
126	e									
127	f									
128	g									
129	h									
130	i									
131										

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A	B	C	D	E	F	G	H	I	J	K
132										
133	Maximum Allowable Industrial Loadings Calculations									
	Pollutant	Maximum Allowable Headworks Loading (lbs/day)	MAHL Basis	Check to Use HASL Cates (X)	Uncontrollable Concentration (mg/l)	Uncontrollable Source	Uncontrollable Load (lbs/day)	Maximum Allowable Industrial Load (lbs/day)	Design vs. Pass-Thru Warning	
134	BOD	29554.8750	Design		85	mass balance	2547.7866	27007.0884		
135	TSS	25332.7500	Design		135	mass balance	4046.4846	21286.2654		
136	Ammonia	28694.9376	AS/Nitr/TF inhibition		13.5	mass balance	404.6485	28290.2891		
137	Arsenic	2.9481	Sludge Ceiling H <sub>2</sub>	x	0.0046	mass balance	0.1379	2.8102		
138	Cadmium	1.2430	Sludge Ceiling		0.001	mass balance	0.0300	1.2130		
139	Chromium	23.5538	AS/Nitr/TF inhibit	N/A	0.003	mass balance	0.0899	23.4638		
140	Copper	60.1867	Sludge Ceiling		0.2492	mass balance	7.4695	52.7172		
141	Cyanide	7.1737	AS/Nitr/TF inhibit	N/A	0.0114	influent	0.3417	6.8320		
142	Lead	13.4921	Sludge Ceiling		0.0065	mass balance	0.1948	13.2973		
143	Mercury	0.03348	NPDES		0.00022	mass balance	0.00659	0.02688		
144	Molybdenum	3.3402	Sludge Ceiling		0.007	influent	0.2098	3.1304		
145	Nickel	9.7978	Sludge Ceiling		0.0041	mass balance	0.1229	9.6749		
146	Selenium	1.9596	Sludge Ceiling		0.0041	mass balance	0.1229	1.8367		
147	Silver	14.9453	AS/Nitr/TF inhibit	N/A	0.0019	mass balance	0.0570	14.8883		
148	Zinc	102.0608	Sludge Ceiling		0.0975	mass balance	2.9225	99.1383		
149	Total Nitrogen									
150	Total Phos.									
151	c									
152	d									
153	e									
154	f									
155	g									
156	h									
157	i									
158	j									

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Allocation Table

Headworks last approved: 01/06/09  
 Allocation Table updated: 11/24/08  
 Permits last modified: 10/01/08

Spreadsheet Instructions:  
 1) Applicable Values should be entered in the Heavy Bordered cells. Rest of worksheet is protected, password is "2".  
 2) Formulas are discussed in the Comprehensive Guidance, Chapter 6, Section C.  
 3) HWA and AT worksheets in this workbook are linked. Pollutant Names, MAHLs, Basis, and Uncontrollable load in this AT worksheet are automatically entered from the HWA spreadsheet. This includes pollutant names in columns AT through BK.

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POTW=> Typicalville  
 NPDES#=> NC0012345

IUP Count	INDUSTRY NAMES <small>(please list alphabetically)</small>	Industry Permit number	Pipe number	Type of Industry	Renewal Effective Date	Modification Effective Date	Date Permit Expires	FLOW		BOD		TSS	
								Permit Limits MGD	gal/day	Permit Limits Conc. mg/l	Load lbs/day	Permit Limits Conc. mg/l	Load lbs/day
1	Flying Carpet Co.	1005	1	textile	10/1/2008		9/30/2013	0.8500	850,000	monitor	monitor	monitor	monitor
2	Carolina Dye House, Inc.	1008	1	textile	10/1/2008		9/30/2013	3.6000	3,600,000	300.00	9007.20	225.00	6755.40
3	Metals Extraordinaire	1012	1	metal finishi	8/1/2005	7/27/2006	7/31/2010	0.0500	50,000	monitor	monitor	monitor	monitor
4													
5													
6													
7													
8													
9													
10								4.5000	4,500,000		9007		6755
Column Totals =>													

Basis=>  
 MAHL from HWA (lbs/day) =>  
 Uncontrollable Loading (lbs/day) =>  
 Total Allowable for Industry (MAIL) (lbs/day) =>  
 Total Permitted to Industry (lbs/day) =>  
 MAIL left (lbs/day) =>  
 Percent Allow. Ind. (MAIL) still available (%) =>  
 Percent MAHL still available (%) =>  
 5 Percent MAHL (lbs/day) =>

NPDES	NPDES Permitted Flow=>	Design
13.5000		29555
3.5940		2548
9.9060		27007
4.5000		9007
5.4060		18000
54.6 %		66.6 %
40.0 %		60.9 %
0.6750		1478
		25333
		4046
		21286
		6755
		14531
		68.3 %
		57.4 %
		1267



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Allocation Table

Headworks last approved: 01/06/09  
 Allocation Table updated: 11/24/08  
 Permits last modified: 10/01/08

POTW=>		Typicalville		Industry		Lead		Mercury		Molybdenum		Nickel		Selenium	
NPDES#=>		NC0012345		INDUSTRY NAMES		Permit Limits									
		(please list alphabetically)		Pipe number		Conc. mg/l									
IUP	Count	Industry Permit number	Pipe number	Load lbs/day	Load lbs/day	Load lbs/day	Load lbs/day	Load lbs/day	Load lbs/day	Load lbs/day	Load lbs/day	Load lbs/day	Load lbs/day	Load lbs/day	Load lbs/day
1		Flying Carpet Co.	1005	monitor	monitor	monitor	monitor	monitor	monitor	monitor	monitor	monitor	monitor	monitor	monitor
2		Carolina Dye House, Inc.	1008	monitor	monitor	monitor	monitor	monitor	monitor	monitor	monitor	monitor	monitor	monitor	monitor
3		Metals Extraordinaire	1012	0.6900	0.2877	monitor	monitor	2.3800	0.9925	monitor	monitor	0.9925	monitor	monitor	monitor
4															
5															
6															
7															
8															
9															
10															
				Column Totals =>			0.2877		0.000000		0.0000		0.9925		0.0000
				Basis=>											
				MAHL from HWA (lbs/day) =>			13.4921		0.033477		3.3402		9.7978		1.9596
				Uncontrollable Loading (lbs/day) =>			0.1948		0.006594		0.2098		0.1229		0.1229
				Total Allowable for Industry (MAIL) (lbs/day) =>			13.2973		0.026883		3.1304		9.6749		1.8367
				Total Permitted to Industry (lbs/day) =>			0.2877		0.000000		0.0000		0.9925		0.0000
				MAIL left (lbs/day) =>			13.0095		0.026883		3.1304		8.6825		1.8367
				Percent Allow. Ind. (MAIL) still available (%) =>			97.8 %		100.0 %		100.0 %		89.7 %		100.0 %
				Percent MAHL still available (%) =>			96.4 %		80.3 %		93.7 %		88.6 %		93.7 %
				5 Percent MAHL (lbs/day) =>			0.6746		0.001674		0.1670		0.4899		0.0980
				Sludge Ceiling											
				NPDES											
				Sludge Ceiling											

Allocation Table

Headworks last approved: 01/06/09  
 Allocation Table updated: 11/24/08  
 Permits last modified: 10/01/08

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POTW=>  
 NPDES#=>

Typicalville  
 NC0012345

IUP Count	INDUSTRY NAMES (please list alphabetically)	Industry Permit number	Pipe number	Silver		Zinc		Total Nitrogen		Total Phos.	
				Permit Limits Conc. mg/l	Load lbs/day						
1	Flying Carpet Co.	1005	1	monitor	monitor		monitor				
2	Carolina Dye House, Inc.	1008	1	monitor	monitor		monitor				
3	Metals Extraordinaire	1012	1	0.2400	0.1001	1.4800	0.6172				
4											
5											
6											
7											
8											
9											
10											
Column Totals =>				0.1001	0.6172		0.00				0.00

AS/Nitr/TF  
inhibition

Sludge  
Ceiling

14.9453	102.0608
0.0570	2.9225
14.8883	99.1383
0.1001	0.6172
14.7882	98.5211
99.3 %	99.4 %
98.9 %	96.5 %
0.7473	5.1030

Basis=>  
 MAHL from HWA (lbs/day) =>  
 Uncontrollable Loading (lbs/day) =>  
 Total Allowable for Industry (MAIL) (lbs/day) =>  
 Total Permitted to Industry (lbs/day) =>  
 MAIL left (lbs/day) =>  
 Percent Allow. Ind. (MAIL) still available (%) =>  
 Percent MAHL still available (%) =>  
 5 Percent MAHL (lbs/day) =>